Product Data Sheet
November 2016
LIQ-PDS-400

Rosemount™ 400 and 400VP

Contacting Conductivity Sensors

Reliable conductivity measurements for your process

With Rosemount 400 and 400VP contacting conductivity sensors, you will be able to accurately measure electrolytic conductivity in a broad range of applications from high purity water to clean cooling water. The Rosemount 400 and 400VP contacting conductivity sensors are ideal for use in clean, non-corrosive liquid having conductivity less than 20,000 µS/cm.

EMERSON

Overview

Minimize Start-up and Installation Time

- A factory-measured cell constant ensures out-of-the-box accuracy and no initial calibration requirements.
- Available in cell constants of 0.01, 0.1, and 1.0/cm.

Meet Your Process Mounting Needs

- The sensors are designed for direct screw-in insertion into process piping using a front facing ¾ in. MNPT fitting.
- Can alternatively be used with a pipe tee or flow cell in a sidestream installation.
- Offered with Variopol (VP6) quick disconnect fitting.

A Robust Two-electrode Design

- The sensors have concentric titanium electrodes separated by a PEEK insulator.
- An EPDM O-ring seals the internal parts of the sensor from the process liquid.
- Available with a high temperature option up to 392 °F (200 °C) with integral junction box.

Contents

Ordering Information

The Rosemount 400/400VP Contacting Conductivity sensors are intended to measure electrolytic conductivity in clean water applications. These sensors can be configured with either a 0.01/cm, 0.1/cm, or 1.0/cm to accommodate varying levels of conductivity. The sensors are available with either an integral cable connection or Variopol (VP6) connector. Variopol cables sold separately (see accessories).

Additional Information

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Table 1. Rosemount 400 Contacting Conductivity Sensor ordering information

Model	Sensor type
400	Contacting Conductivity Sensor
Cell constant	
11	0.01/cm
12	0.1/cm
13	1.0/cm
Temperature compensation	
_	Pt-1000 (1)
54	Pt-100
55	10K Ohm TC
Option 1	
_	No selection
36	Extended insertion length (2)
Option 2	
_	No selection
50	Integral 50 ft (15 m) cable
60	Integral junction box
Typical Model Number: 400-11-_-36-50	

1. For use with Rosemount transmitter models 56, 1056, 1057, 1066, 5081, and legacy transmitter models 1055, 54C, 54eC, 4081C, 6081-C, and XMT-C.
2. 5.5 inches from the bottom of threads to tip of sensor.

Table 2. Rosemount 400VP Contacting Conductivity Sensor with Variopol cable connection ordering information

Model	Sensor type
400VP	Contacting Conductivity Sensor
Cell constant	
11	0.01/cm
12	0.1/cm
13	1.0/cm
Temperature compensation	
_	Pt-1000 (1)
54	Pt-100
55	10K Ohm TC
56	100K Ohm TC
Option 1	
_	No selection
36	Extended insertion length (2)
Typical Model Number: 400-11-_-36	

1. For use with Rosemount transmitter models 56, 1056, 1057, 1066, 5081, and legacy transmitter models 1055, 54C, 54eC, 4081C, 6081-C, and XMT-C.
2. 5.5 inches from the bottom of threads to tip of sensor.

Specifications

Table 3. Rosemount 400/400VP Contacting Conductivity Sensor specifications

Wetted materials	
Electrodes	Titanium
Insulator	Glass Filled PEEK
Body	316 Stainless Steel
O-ring	EPDM
Temperature range	
Standard	32 to 221 °F (0 to 105 °C)
With Optional Integral Junction Box	32 to 392 °F (0 to 200 °C)
Maximum pressure	
250 psig (1825 kPa abs)	
Vacuum	
At 1.6 in. Hg (5.2 kPa) air leakage is less than 0.005 SCFM (0.00014 m^3/min)	
Cell constants	
0.01, 0.1, and 1.0/cm	
Process connection	
¾ in. MNPT	
Cable	
10 ft (3.1 m) standard; 50 ft (15.2m) optional, Interconnecting VP6 cables sold separately (See Accessories).	

Table 4. Rosemount 400/400VP weights and shipping weights*

Rosemount 400 with integral cable	**Weight**	**Shipping weight**
10 ft (3.0m)	1 lb. (0.5 kg)	2 lb. (1.0 kg)
50 ft (15.2m)	4 lb. (2.0 kg)	5 lb. (2.5 kg)
Rosemount 400VP with Variopol cable connection	1 lb. (0.5 kg)	2 lb. (1.0 kg)
Rosemount 400 with integral junction box	3 lb. (1.5 kg)	4 lb. (2.0 kg)

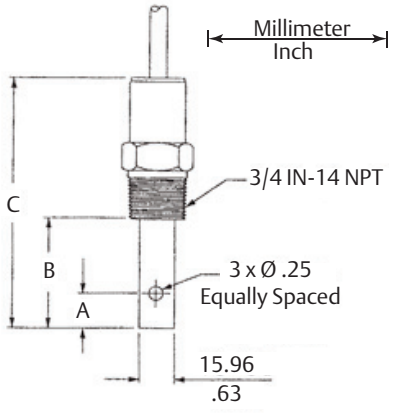
** Rounded up to the nearest 1 lb or 0.5 kg.*

Flow Cell Specifications (P/N 24091-02)

Wetted materials	
Body and Nut	Polycarbonate and Polyester
¼ in. Fittings	316 Stainless Steel
O-ring	Silicone
Process connection	
Compression fitting for ¼ in. OD tubing	
Maximum temperature	
158 °F (70 °C)	
Maximum pressure	
90 psig (722 kPa abs)	

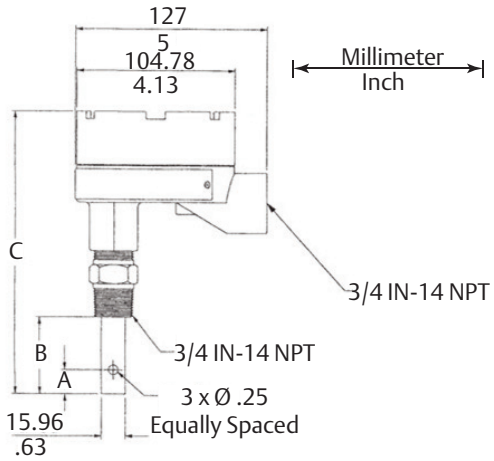
Dimensional Drawings

Figure 1. Rosemount 400 with integral cable connection dimensional drawing



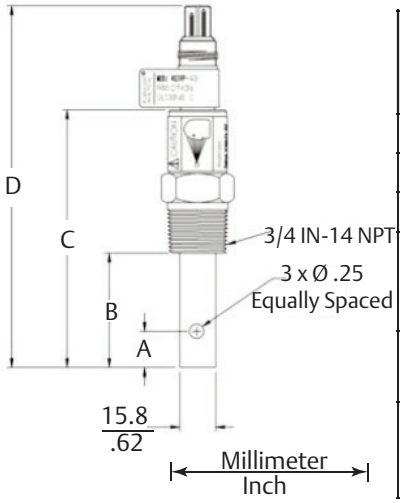
Sensor configuration	A		B		C	
	Inches	mm	Inches	mm	Inches	mm
0.01/cm	1.59	40.39	1.98	50.34	4.52	114.8
0.1/cm	0.687	17.45	1.11	28.15	3.65	92.71
1.0/cm	0.667	16.94	1.13	28.70	3.67	93.22
0.01/cm (with extended insertion length)	1.59	40.39	5.49	139.4	8.00	203.2
0.1/cm (with extended insertion length)	0.687	17.45	5.49	139.4	8.00	203.2
1.0/cm (with extended insertion length)	0.667	16.94	5.49	139.4	8.00	203.2

Figure 2. Rosemount 400 with integral junction box dimensional drawing



Sensor configuration	A		B		C	
	Inches	mm	Inches	mm	Inches	mm
0.01/cm	1.59	40.39	1.98	50.34	7.41	188.2
0.1/cm	0.687	17.45	1.11	28.15	6.49	164.9
1.0/cm	0.667	16.94	1.13	28.70	6.51	165.4
0.01/cm (with extended insertion length)	1.59	40.39	5.49	139.4	10.90	276.9
0.1/cm (with extended insertion length)	0.687	17.45	5.49	139.4	10.90	276.9
1.0/cm (with extended insertion length)	0.667	16.94	5.49	139.4	10.90	276.9

Figure 3. Rosemount 400VP with Variopol cable connection dimensional drawing



Sensor configuration	A		B		C		D	
	Inches	mm	Inches	mm	Inches	mm	Inches	mm
0.01/cm	1.59	40.39	1.98	50.3	4.43	112.5	6.3	160.0
0.1/cm	0.67	17.0	1.10	27.9	3.47	90.4	5.43	137.9
1.0/cm	0.67	17.0	1.10	27.9	3.58	90.9	5.45	138.4
0.01/cm (with extended insertion length)	1.59	40.4	5.48	139.2	7.91	200.9	9.78	248.4
0.1/cm (with extended insertion length)	0.67	17.0	5.48	139.2	7.91	200.9	9.78	248.4
1.0/cm (with extended insertion length)	0.67	17.0	5.48	139.2	7.91	200.9	9.78	248.4

Figure 4. Flow cell (PN 24091-02)

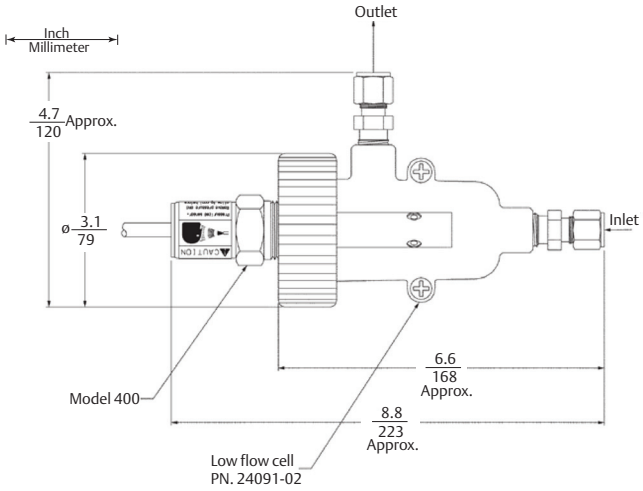


Figure 5. Rosemount 400 with integral cable connection

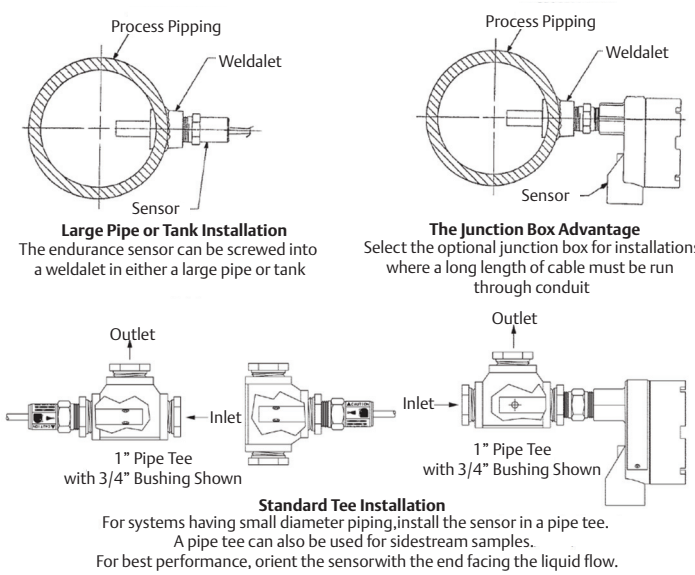
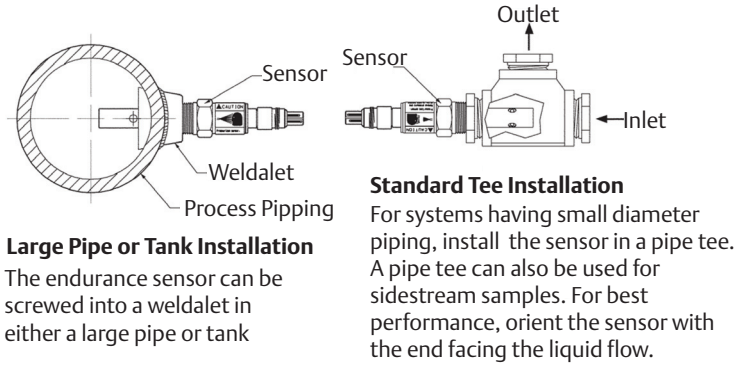


Figure 6. Rosemount 400VP with variopol cable connection



Accessories

Table 5. Rosemount 400/400VP Contacting Conductivity Sensor accessories information

Part number	Description
23550-00	Remote junction box without preamplifier
23747-00	Interconnect cable, prepped (must specify length)
9200275	Extension cable, unprepped (must specify length)
24091-02	Low Flow Cell for Rosemount 400/400VP Sensors
05010781899	Conductivity standard SS-6, 200 µS/cm, 32 oz (0.95 L)
05010797875	Conductivity standard SS-6A, 200 µS/cm, 1 gal (3.78 L)
05010782468	Conductivity standard SS-5, 100k0 µS/cm, 32 oz (0.95 L)
05010783002	Conductivity standard SS-5A, 1000 µS/cm, 1 gal (3.78 L)
05000705464	Conductivity standard SS-1, 1409 µS/cm, 32 oz (0.95 L)
05000709672	Conductivity standard SS-1A, 1409 µS/cm, 1 gal (3.78 L)
05010782147	Conductivity standard SS-7, 5000 µS/cm, 32 oz (0.95 L)
05010782026	Conductivity standard SS-7A, 5000 µS/cm, 1 gal (3.78 L)
23747-06	2.5 ft (0.8 m) Interconnecting VP6 Cable
23747-04	6.4 ft (1.2 m) Interconnecting VP6 Cable
23747-02	10 ft (3.0 m) Interconnecting VP6 Cable
23747-07	15 ft (4.6 m) Interconnecting VP6 Cable
23747-08	20 ft (6.1 m) Interconnecting VP6 Cable
23747-09	25 ft (7.6 m) Interconnecting VP6 Cable
23747-10	30 ft (9.1 m) Interconnecting VP6 Cable
23747-03	50 ft (15.2 m) Interconnecting VP6 Cable
23747-11	100 ft (30.5 m) Interconnecting VP6 Cable

Engineering Specifications

Cell constants 0.01, 0.1, and 1.0/cm

- The sensor shall be suitable for the determination of electrolytic conductivity in clean, noncorrosive samples.
- The sensor shall have a ¾- in. MNPT fitting for direct insertion into pipes or tees. A clear plastic flow cell shall also be available for sidestream samples.
- The sensor shall incorporate titanium electrodes and a PEEK insulator.
- The sensor shall have an integral platinum RTD for temperature measurement.
- The sensor shall be available with either integral cable or a Variopol quick disconnect fitting.
- The maximum temperature for the sensor shall be 221 °F (105 °C) at 250 psig (1825 kPa abs). A high temperature option that can be used at 392 °F (200 °C) shall also be available.
- The sensor shall be suitable for vacuum service as low as 1.6 in Hg (5.2 kPa).
- The sensor shall be Rosemount 400 (integral cable) or 400VP (Variopol fitting) or approved equal.

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